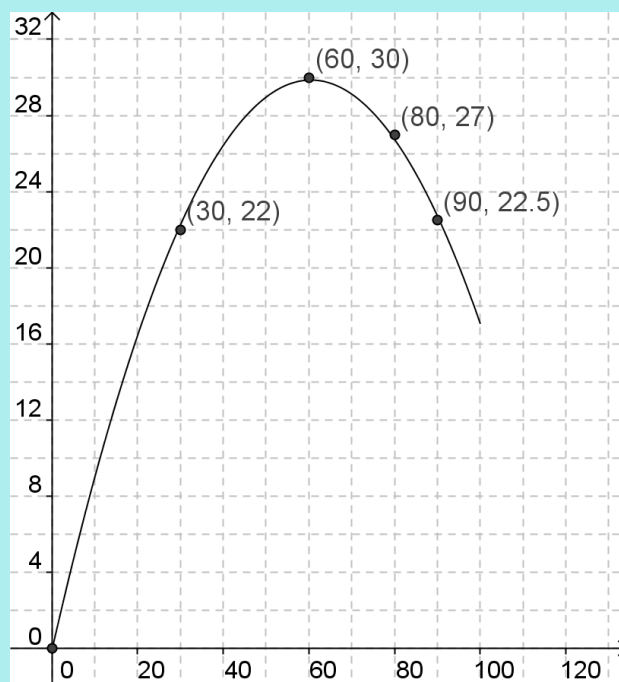
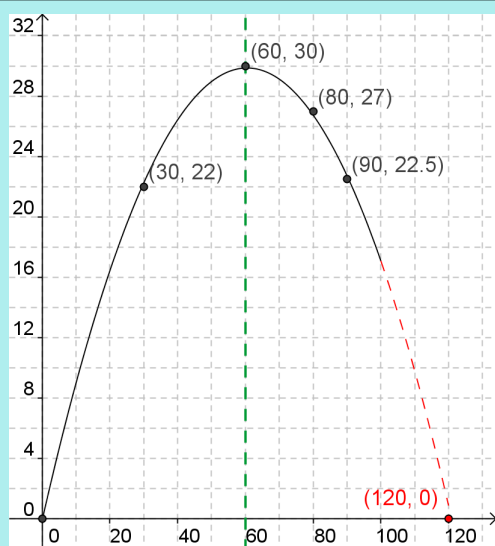


Data from the flight of a golf ball are graphed below. Identify key features that could be used to model the path using factored form or standard form.

$$y = a(x - s)(x - t) \quad y = ax^2 + bx + c$$



Apr 18-2:59 PM



- one zero at (0, 0)
- y-intercept at (0, 0)
- max at (60, 30)
- axis of symmetry $x = 60$
- other zero must be at (120, 0) by symmetry

standard

$$y = ax^2 + bx + c$$

factored

$$y = a(x - s)(x - t)$$

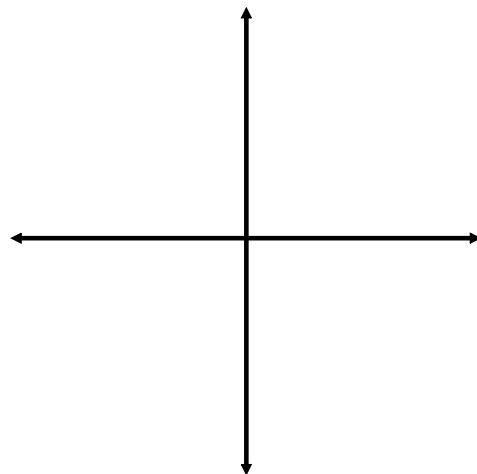
Apr 18-2:59 PM

L10(3.3) - Modelling Quadratics Using Factored and Standard Form

- 1) Sketch the parabola, if possible.
- 2) Identify the key properties given.
- 3) Use symmetry to deduce other key properties.
- 4) Select the equation based on key properties:
factored form: at least one zero, two other points
standard form: y-intercept, two other points
- 5) Substitute given information or points to solve for any missing values.
- 6) Does your answer make sense? Is there agreement with key features? Can you predict others?

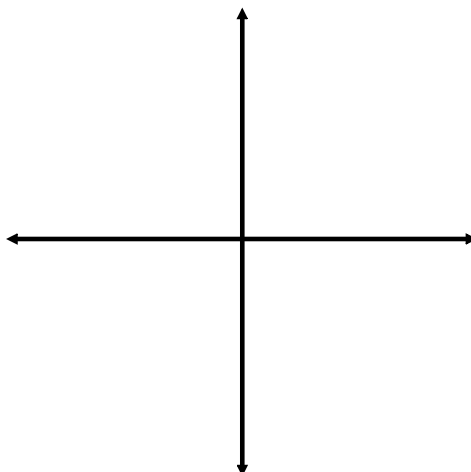
Apr 18-3:11 PM

Ex.1 Find the equation, in factored form, of the quadratic that passes through the points $(-3, 0)$, $(5, 0)$ and $(7, 2)$.



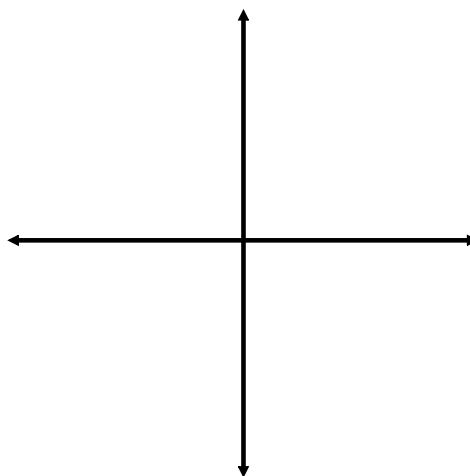
Apr 22-9:25 PM

Ex.2 Find the equation of the parabola, in factored form, that has only one zero, which is 2, and that passes through the point (5, -2).



Apr 18-3:18 PM

Ex.3 A bird swoops from a branch 10 m above the ground. After 3 seconds it is 1 m above the grass, and then it flies to a perch in another tree. Assuming the path is *approximately parabolic*, model the flight of the bird.



Nov 1-11:02 PM

Assigned Work:

p.175 # 1, 2, 4, 6, 9, 11, 15*